Overview of:
Municipal
Separate
Storm
Sewer
System (MS4) Permit

TOWN OF RAYMOND, NH
BY KRISTIE RABASCA, PE
INTEGRATED ENVIRONMENTAL ENGINEERING, INC.

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Overview of MS4 Permit

Topics to be covered:

- How the Town became regulated (and can they become "unregulated"?) (15 minutes)
- Permit Requirements and Cost (20 minutes)
- Questions

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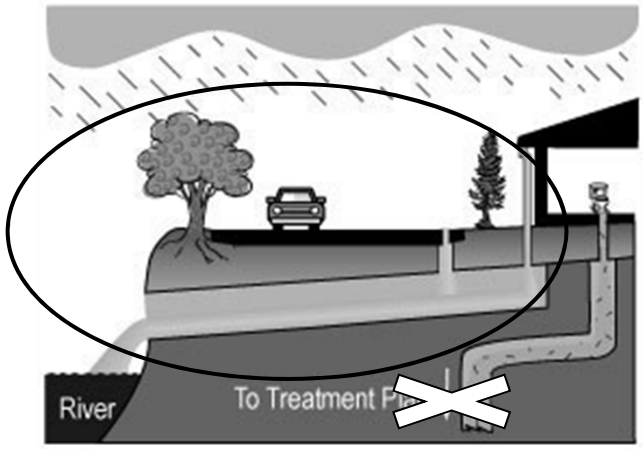
How the Town became regulated...



Typical Separated Systems

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Graphic from omahacso.com

How the Town became regulated...

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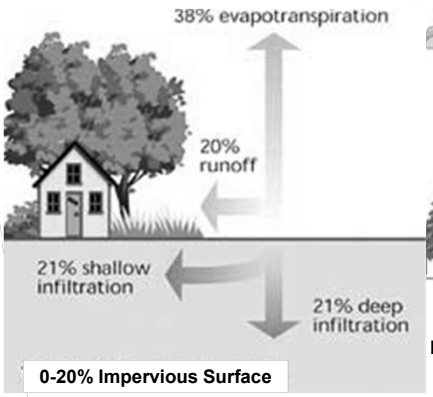
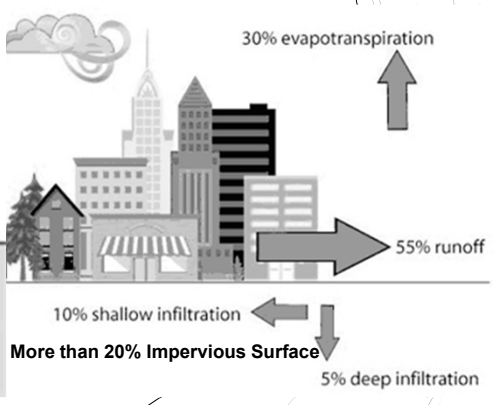
How the Town became regulated...

More people = more impervious cover
= more potential for stormwater pollution





How the Town became regulated...

Clean Water Act of 1977
- 1980's Studies show
  - Stormwater should be regulated

- Phase I – Large Cities 1990
- Phase II – Medium/Small 2000 (2003 really)

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How the Town became regulated…

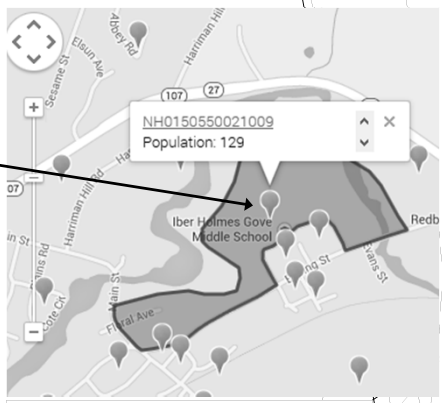
First Small/Medium MS4 Five Year Permit issued May 1, 2003

"Urbanized Area"

2000 Census Basis:

High population density

1,000-500 people per square mile (ppsm)
AND
Total of 50,000 people



The area of this census block is 0.08 square miles. With a population of 129 people, the population density is:

$$\frac{129\ people}{0.084\ square\ miles} = 1{,}536\ ppsm$$

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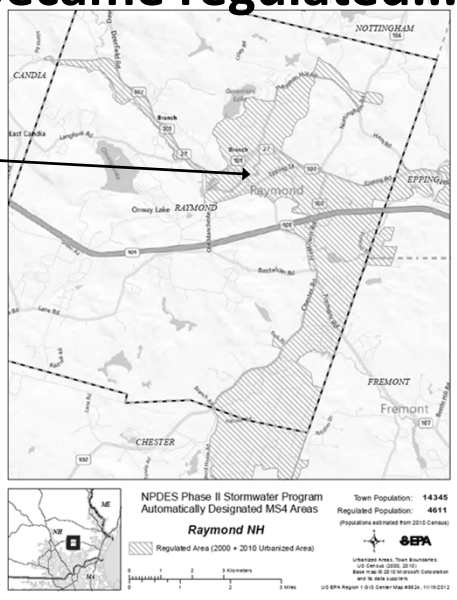
How the Town became regulated…

"Urbanized Area"

2010 Census Basis, High population density
1,000-500 people per square mile
OR
>20% impervious cover…



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How the Town became regulated...

- **Raymond Urbanized Area is associated with <u>Boston UA</u>**

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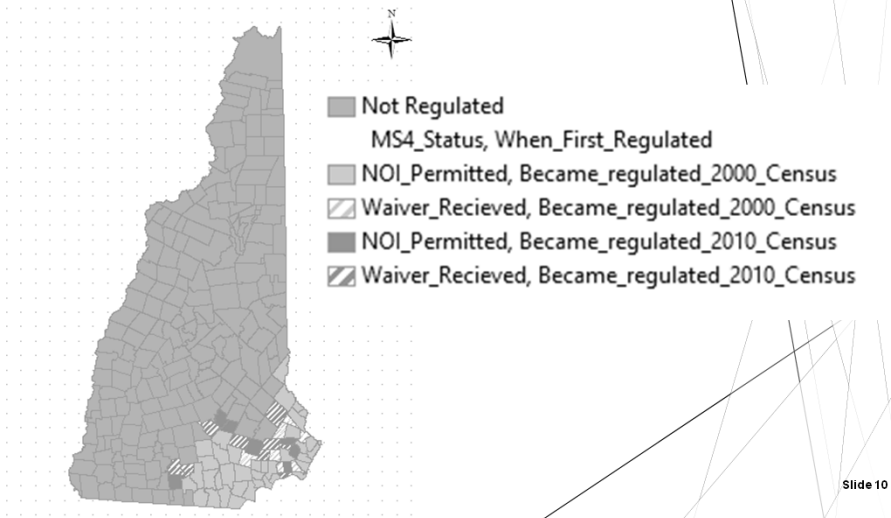
How the Town became regulated...



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How the Town became regulated...

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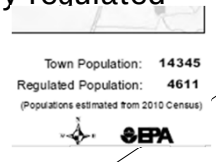
How the Town became regulated...

Two possible waivers:

- <1,000 people - ~~easy~~
- <10,000 peop~~le really difficult~~ (more work than co~~mpliance with~~ permit)

Double Check that Town is really regulated (census check)

?



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How the Town became regulated...

Without getting into too much detail, we questioned:

- Which blocks qualified as impervious cover
- Which blocks qualified because of hops and jumps
- Which blocks qualified because of enclaves or indentations….

FINDING: Not eligible for waiver, US Census calculations correct (except for total population)

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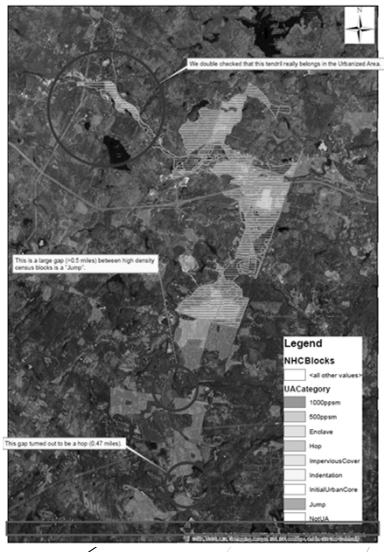

Program Overview

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Program Overview

Everybody does the same things:
Writes a Five-Year Plan to
address six Minimum Control Measures

1. Public Education & Outreach
2. Public Involvement & Participation
3. Illicit Discharge Detection and Elimination
4. Construction Runoff
5. Stormwater Management in New and Re-Development (Post Construction)
6. Good Housekeeping for Municipal Operations

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Program Overview

ITEM DESCRIPTION	2015	2016	2017	2018	2019
1. Public Education	$ -	$ 11,500	$ 5,000	$ 5,000	$ 5,000
2. Public Participation	$ 1,200	$ 1,200	$ 1,200	$ 1,200	$ 1,200
3. Illicit Discharge Detection and	$ -	$ 27,500	$ 56,900	$ 35,350	$ 38,350
4. Construction Runoff Control	$ -	$ 8,000	$ -	$ -	$ -
5. Post-Construction Runoff Control	$ 3,000	$ 38,800	$ 28,300	$ 30,300	$ 30,300
6. Pollution Prevention/Good	$ 14,700	$ 53,800	$ 43,750	$ 45,000	$ 45,000
Impaired Water and Program Items	**$ 25,200**	**$ 14,250**	**$ 41,250**	**$ 55,750**	**$ 86,250**
Total Estimated Cost of Compliance	**$ 44,100**	**$155,050**	**$ 176,400**	**$ 172,600**	**$ 206,100**

Total Anticipated cost over 5 years:
$754,000

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Program Overview

Minimum Control Measures

1. PUBLIC EDUCATION & OUTREACH
2. PUBLIC INVOLVEMENT & PARTICIPATION


GREENWorks

Ideas for a Cleaner Environment

A publication of the New Hampshire Department of Environmental Services, Concord, NH (603) 271-3710

March 2010

Green Grass and Blue Water:

Water Friendly Lawn Care Recommendations

Guest Columnist: Julia Peterson, NH Sea Grant and UNH Cooperative Extension

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Program Overview

Minimum Control Measures

1. PUBLIC EDUCATION & OUTREACH
2. PUBLIC INVOLVEMENT & PARTICIPATION

Task Description	2015	2016	2017	2018	2019
Baseline assessment of public knowledge and development of program materials.	$ -	$ 6,500	$ -	$ -	$ -
Distribute educational materials (2 messages each year) and evaluate effectiveness.		$ 5,000	$ 5,000	$ 5,000	$ 5,000
Involve public in development and review of Stormwater program	$ 1,200	$ 1,200	$ 1,200	$ 1,200	$ 1,200

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Program Overview

3. Illicit Discharge Detection and Elimination

1. Map the system
2. Look for illicit discharges
3. Eliminate illicit discharges

il·lic·it
/i(l)ˈlisit/
adjective
forbidden by law, rules, or custom.
"illicit drugs"
synonyms: illegal, unlawful, illegitimate, criminal, felonious;

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Program Overview

3. IDDE

Task Description	2015	2016	2017	2018	2019
Outfall Inventory	$ -	$ 7,500	$ -	$ -	$ -
Preparation and upkeep of map and catchments	$ -	$ -	$ 14,000	$ 11,250	$ 3,000
Physically label outfalls	$ -	$ -	$ -	$ -	$ 10,000
IDDE Program document and Ordinance/Regulation/Training	$ -	$ 7,300	$ 14,000	$ 4,800	$ 2,800
Inspections/Sampling and Analysis	$ -	$ 8,900	$ 14,300	$ 12,150	$ 7,000
Elimination (construction projects)	$ -	$ 5,600	$ 13,000	$ 5,600	$ 13,000
Confirmatory sampling and inspections	$ -	$ -	$ 1,550	$ 1,550	$ 1,550

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Program Overview

4. Construction Runoff Control

Implement and enforce a program to reduce pollutants from construction-related stormwater runoff at sites that disturb one or more acres of land.

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Program Overview

4. Construction Runoff Control

Task Description	2015	2016	2017	2018	2019
Modify Stormwater Management and Erosion Control Regulation (currently commercial projects only, add waste management and other specific requirements), develop written procedure for inspections.	$ -	$ 8,000	$ -	$ -	$ -
Conduct Inspections	$ -	$ -	$ -	$ -	$ -

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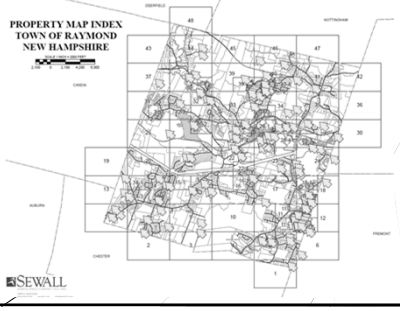
Program Overview

5. Stormwater Management in New and Re-Development



1. Require developers to implement low impact designs,
2. Prioritize town properties for retrofitting
3. Implement town retrofits

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Program Overview

5. Stormwater Management in New and Re-Development

Task Description	2015	2016	2017	2018	2019
Modify Stormwater Management and Erosion Control Regulation (2008 NH SW Mgt manual, maintenance requirements, require as-builts from contractors, evaluate potential to require green infrastructure and	$ -	$ 24,500	$ -	$ 2,000	$ 2,000
Evaluate Road Construction Standards, and modify.		$ 4,500	$ -		
Keep track of impervious cover in Town	$ 3,000	$ 800	$ 800	$ 800	$ 800
Prioritize Town properties for retrofit	$ -	$ 9,000			
Implement prioritized retrofit program	$ -	$ -	$ 27,500	$ 27,500	$ 27,500

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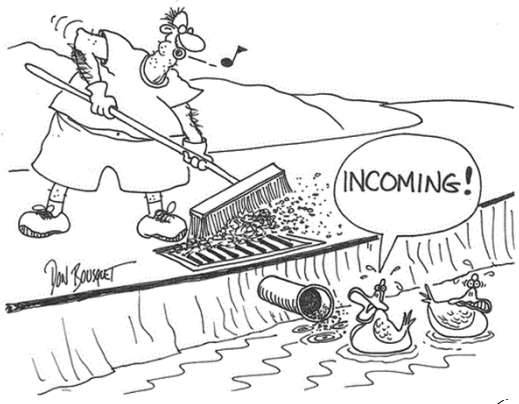
Six Minimum Control Measures

6. Good Housekeeping Pollution Prevention



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Program Overview

6. Good Housekeeping Pollution Prevention – Municipal Ops.

- Street Sweeping
- Catch Basin Cleaning, residuals disposal
- Prioritized maintenance of system
- Good Operation and maintenance of municipal properties

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Program Overview

6. Pollution Prevention Good Housekeeping – Municipal Ops.
   - ~ 30,000 feet drain pipe
   - 300 catch basins
   - 3,000 culverts

Condition	Valuation	Recommended Maintenance Expenditure (50 year replacement)
Excellent	$3,250,000	$65,000
Good	1,625,000	$37,000
Poor	$500,000	$9,400

Program Overview

6. Good Housekeeping Pollution Prevention

Task Description	2015	2016	2017	2018	2019
Catch basin documentation and residual assessment (does not include alternate disposal practice)	$ 4,500	$ 2,000	$ 2,000	$ 2,000	$ 2,000
Street Sweeping (no change from current practice)	$ -	$ -	$ -	$ -	$ -
Maintenance of system	$ -	$ 37,000	$ 37,000	$ 37,000	$37,000
TS SWPPP and O&M on Town properties	$10,200	$ 4,800	$ 4,750	$ 6,000	$ 6,000

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Program Overview

The Town must also:

1. Develop and implement a Phosphorous Control Plan for Governor's Lake
2. Develop and implement a Water Quality Response Plan for 6 other waters that have impairments
3. Prepare and submit annual reports to EPA

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Program Overview

Impaired Water and General Requirements

Task Description	2015	2016	2017	2018	2019
Governor's Lake (estimate P discharges, inventory and rank measures to correct, implement)	$ 7,000	$ 7,000	$ 21,000	$ 50,500	$ 37,500
Water Quality Response Plan 7 waters with impairments)	$ -	$ -	$ 15,000	$ -	$ 42,000
Overall Stormwater Plan and Annual	$ 18,000	$ 7,250	$ 5,250	$ 5,250	$ 5,250

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Program Overview

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Questions

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